WE CLAIM:

1. A communication module which receives an input RF signal and converts said input RF signal to a desired RF output signal (105), the communication module comprising:

a first frequency agile local oscillator (49) for generating a first frequency for mixing with said input RF signal to generate a high intermediate frequency (HI-IF) signal;

a second frequency agile local oscillator (51) for generating a second frequency for mixing with said HI-IF signal to generate said desired RF output signal (105);

a processor including:

a controller for controlling said first and second frequency agile local oscillators (49, 51) to obtain said desired RF output signal (105); and

a comparator for comparing said first frequency with said second frequency to determine whether any interfering oscillator difference beat frequencies (ODBFs) exist within the bandwidth of said desired RF output signal (105), and for calculating a delta value to avoid said ODBFs; whereby said processor adjusts said first and second frequency agile local oscillators by said delta value such that said first and second frequencies move said interfering ODBFs outside the bandwidth of said desired RF output signal (105).

2. The communication module of claim 1 wherein the communication module receives a plurality of input RF signals and said communication module further includes a signal selector for

selecting one of said plurality of input RF signals for mixing with said first frequency.

3. The communication module of claim 1 further comprising a transmitter, for wirelessly transmitting said RF output signal (105) to a receiver.

4. The communication module of claim 3, whereby said transmitted signal is transmitted within the UHF or VHF frequency bands.

5. The communication module of claim 1, whereby the communication module is encompassed within a single integrated circuit.

6. The communication module of claim 1, whereby the communication module comprises an RF receiver circuit.

7. The communication module of claim 1, whereby the communication module comprises an RF transmitter circuit.

8. The communication module of claim 1 wherein said selected signal represents an analog signal transmission.

9. The communication module of claim 1 wherein said selected signal represents a digital signal transmission.

10. The communication module of claim 2 wherein said processor further comprises collateral memory for storing a channel map of channels to predetermined channel carrier frequencies; whereby said processor receives a specific channel selection request and determines said initial first local oscillator frequency.

11. A universal modulator for receiving a plurality of baseband input signals and outputting a desired RF output signal (105) comprising:

a first PLL frequency synthesizer (41) for generating a first frequency for mixing with a baseband audio signal to relocate said baseband audio signal within a desired bandwidth;

a second PLL frequency synthesizer (49) for generating a second frequency for mixing with a summed signal within the desired bandwidth which includes said relocated baseband audio signal and a baseband video signal to produce a HI-IF signal;

a third PLL frequency synthesizer (51) for generating a third frequency for mixing with said HI-IF signal to produce an RF output signal (105); and

a processor for selecting said first (41), second (49) and third (51) PLL frequency synthesizers based upon said desired RF output signal (105) whereby said processor:

determines a first PLL frequency for said first synthesizer (41);

determines a second initial PLL frequency for said second synthesizer (49);

compares said second initial PLL frequency with a third initial PLL frequency for said third synthesizer (51) to determine whether any interfering oscillator difference beat frequencies exist within the bandwidth of said RF output signal (105); and

adjusts said second and third initial PLL frequencies to move any interfering ODBFs out of the bandwidth of said RF output signal (105).

12. A method for receiving an input RF signal and converting said input RF signal to a desired RF output signal (105), the method comprising:

generating a first frequency for mixing with said input RF signal to generate a high intermediate frequency (HI-IF) signal;

generating a second frequency for mixing with said HI-IF signal to generate said desired RF output signal (105);

controlling said first and second frequency agile local oscillators to obtain said desired RF output signal (105);

comparing said first frequency with said second frequency to determine whether any interfering oscillator difference beat frequencies (ODBFs) exist within the bandwidth of said desired RF output signal (105), and for calculating a delta value to avoid said ODBFs; and

adjusting said first and second frequency agile local oscillators by said delta value such that said first and second frequencies move said interfering ODBFs outside the bandwidth of said desired RF output signal.